Space Weather Forecast

Issued on Friday, 01 March 2024 at 12:29 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Risk of Moderate or Strong flares from the large sunspot in the northwest, declining through the period.

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Activity has been Low during the last 24 hours, with just low level Common-class flares. There are now nine sunspot regions on the disc. The region in the northwest remains the largest and most significant potential flare source, with magnetic complexity still visible despite the increasingly foreshortened view. It also has a large amount of associated magnetic flux, increasing the potential for larger flares. Another region just west of north centre disc has some very weak and faint magnetic complexity. A region in the southwest has continued to develop, with the penumbra around the lead and trailing spots consolidating. A new region on the southeast limb is likely to be the leading edge of a region which was active on the previous rotation, and may reveal more spots as it rotates further onto the disc. Remaining regions are smaller and simpler at the present time, with some decay.
No Earth directed Coronal Mass Ejections were seen in the last 24 hours.
Solar Wind / Geomagnetic Activity: Solar winds were at mostly slow levels, although with some Unsettled geomagnetic activity which could have been caused by a solar sector boundary crossing, or a weak transient. Wind speeds generally varied between 350-410 km/s. The interplanetary magnetic field was weak throughout. The north-south component varied weakly, but was mostly southward directed. Geomagnetic activity was Quiet to Unsettled (Kp 0-3).
Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background levels with no radiation storms observed.

Four-Day Space Weather Forecast Summary
Solar Activity: Low to Moderate activity is expected with isolated Moderate-class flares likely. There remains a slight chance of Strong flares from the large sunspot in the northwest, although through Days 3 and 4 (03 and 04 Mar) this risk diminishes as the region rotates behind the west limb.
Solar Wind / Geomagnetic Activity: There are three recent CMEs which are all most likely to miss Earth, but with a risk of some glancing influence later on Day 2 (02 Mar), perhaps extending into Day 3 (03 Mar). Otherwise no notable solar wind enhancements are expected. Geomagnetic activity is therefore forecast to be mostly Quiet, perhaps increasing to give Unsettled to Active intervals with any CME influence on Days 2 and 3, with a very slight chance of an isolated G1/Minor Geomagnetic storm interval.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is likely to persist at background levels, but with a slight chance of rising above the S1/Minor Radiation Storm threshold in response to any notable flares from the large sunspot in the northwest of the disc.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

Met Office

Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	10	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	60	60	50	40
Very Active	R3 to R5 X	No	15	15	15	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	15	15	15	10
Very Active	≥ S3 *	No	5	5	5	2
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.